

WE CLAIM

1. A substrate processing system for processing a substrate, comprising:
a carrier gas source;
a liquid source container;
a reactor;
a vaporization chamber comprising a body that forms a first inner surface that defines at least in part a cavity, the cavity being in communication with the carrier gas source through a gas line, the liquid source container through a supply line and the reactor through a feed line, the first inner surface being made from a first material that is non-ferric; and
a transition piece having a first surface made from the first material and a second surface made from a second material that is ferric; wherein a connection between the vaporization chamber and at least one of the gas line, the supply line and the feed line extends from the first surface to the second surface and through the body of the vaporization chamber to the cavity, the connection including a connector that is attached to the second surface of the transition piece.
2. A substrate processing system as in Claim 1, wherein the first material is aluminum.
3. A substrate processing system as in Claim 2, wherein the second material is stainless steel.
4. A substrate processing system as in Claim 4, wherein the liquid source container contains liquid trisilane.
5. A substrate processing system as in Claim 5, wherein the carrier gas source contains hydrogen gas.
6. A substrate processing system as in Claim 1, wherein the second material is stainless steel.
7. A substrate processing system as in Claim 1, wherein the transition piece is welded to the body of the vaporization chamber.
8. A substrate processing system as in Claim 1, wherein the vaporization chamber includes a liquid level sensing device.

9. A substrate processing system as in Claim 8, wherein the liquid level sensing device is configured to sense the capacitance difference between a liquid source material and a vaporized source material.

10. A substrate processing system as in Claim 9, wherein the liquid and vaporized source material is trisilane.

11. The substrate processing system as in Claim 1, wherein the transition member comprises a first member and a second member, the first member being formed, at least in part, from the first material and the second member being formed, at least in part, from the second material.

12. The substrate processing system as in Claim 11, wherein the second member comprises a first layer of the first material that has been explosion bonded to the second member, the first member being explosion bonded to the first layer of the second member.

13. The substrate processing system as in Claim 12, wherein the first layer is mechanically cladded to a second layer of the second material, the second layer being explosion bonded to the second member.

14. The substrate processing system as in Claim 1, wherein the vaporization chamber is a bubbler.

15. A vaporization chamber for a substrate processing system that comprises:

a main body made of aluminum; the main body defining a first inner surface, which defines, at least in part, a cavity;

a cover member that is also made of aluminum, the cover member defining a second inner surface, which also defines, at least in part, the cavity; the cover member comprising a carrier gas cover inlet, a liquid source cover inlet, a source cover outlet which extend from a first outer surface through the cover member to the second inner surface; and

a transition member that is made of stainless steel and has a transition outer surface and a transition inner surface; the transition inner surface being aluminum cladded; the cover member comprising a carrier gas cover inlet, a liquid source cover inlet, a source cover outlet which extend from a first outer surface through the cover

member to second inner surface; the transition inner surface and the cover outer surface being welded together.

16. A vaporization chamber as in Claim 15, further comprising a liquid level sensing device that extends through an opening in the transition member and the cover member into the cavity.

17. A vaporization chamber as in Claim 16, wherein the liquid level sensing device is configured to sense the capacitance difference between a liquid source material and a vaporized source material.

18. A vaporization chamber as in Claim 15, wherein the liquid and vaporized source material is trisilane.

19. A vaporization chamber as in Claim 15, further comprising a cooling/heating jacket.

20. A vaporization chamber as in Claim 15, further comprising a first tubular member that extends from the carrier gas cover inlet to a lower portion of the cavity and a second tubular member that extends from the a liquid source cover inlet to the lower portion of the cavity.

21. A vaporization chamber as in Claim 15, including at least one connector that is welded to at least one of the carrier gas cover inlet, a liquid source cover inlet, and the source cover outlet.

22. A vaporization chamber as in Claim 15, wherein the transition inner surface comprises aluminum that is mechanically cladded to stainless steel.

23. A vaporization chamber as in Claim 14, wherein the vaporization chamber is a bubbler.

24. A vaporization chamber for vaporizing liquid trisilane:

a main body made of a non-ferric material the main body defining a first inner surface, which defines, at least in part, a cavity;

a quantity of liquid trisilane contained within the cavity;

a cover member that is also made of a non-ferric material, the cover member defining a second inner surface, which also defines, at least in part, the cavity; the cover member comprising a carrier gas cover inlet, a liquid source cover inlet, a

source cover outlet which extend from a first outer surface through the cover member to the second inner surface; and

a transition member that is made of a ferric material and has a transition outer surface and a transition inner surface; the transition inner surface being cladded with a non-ferric material; the cover member comprising a carrier gas cover inlet, a liquid source cover inlet, a source cover outlet which extend from a first outer surface through the cover member to second inner surface; the transition inner surface and the cover outer surface being welded together.

25. A vaporization chamber as in Claim 24, wherein the main body is made of aluminum.

26. A vaporization chamber as in Claim 24, wherein the cover member is made of aluminum.

27. A vaporization chamber as in Claim 24, wherein the transition member is made of stainless steel.

28. A vaporization chamber as in Claim 24, wherein the transition inner surface is cladded with aluminum.